(e) *Nickel plate:* Nickel plate must comply with the following specification:

Specifications	Minimum tensile strength (p.s.i.) welded condition [1]	Minimum elongation in 2 inches (percent) weld metal (longitudinal)
ASTM B 1622 [2]	40,000	20

[1] Maximum stresses to be used in calculations.
[2] When used as cladding for carbon steel plate, low-carbon nickel is required.

(f) *Manganese-molybdenum steel plate:* Manganese-molybdenum steel plate must be suitable for fusion welding and comply with the following specification:

Specifications	Minimum tensile strength (p.s.i.) welded condition [1]	Minimum elongation in 2 inches (percent) weld metal (longitudinal)
ASTM A 302, Gr. B	80,000	20

[1] Maximum stresses to be used in calculations.

(g) All parts and items of construction in contact with the lading must be made of material compatible with plate material and not subject to rapid deterioration by the lading, or be coated or lined with suitable corrosion resistant material.

(h) All external projections which may be in contact with the lading and all castings, forgings, or fabrications used for fittings or attachments to tank and expansion dome, when used, in contact with lading must be made of material to an approved specification. See AAR Specifications for Tank Cars, appendix M, M4.05 (See §171.7 of this subchapter) for approved material specifications for castings for fittings.

[Amdt. 179–10, 36 FR 21349, Nov. 9, 1971; 36 FR 21893, Nov. 17, 1971, as amended by Amdt.179–28, 46 FR 49906, Oct. 8, 1981; Amdt. 179–40, 52 FR 13046, Apr. 20, 1987; Amdt. 179–52, 61 FR 28680, June 5, 1996; 66 FR 45186, Aug. 28, 2001; 67 FR 51660, Aug. 8, 2002]

§179.200–8 Tank heads.

(a) All external tank heads must be an ellipsoid of revolution in which the major axis must equal the diameter of the shell and the minor axis must be one-half the major axis.

(b) Internal compartment tank heads may be 2:1 ellipsoidal, 3:1 ellipsoidal, or flanged and dished to thicknesses as specified in §179.200–6. Flanged and dished heads must have main inside radius not exceeding 10 feet, and inside knuckle radius must not be less than 3¾ inches for steel, alloy steel, or nickel tanks, and not less than 5 inches for aluminum alloy tanks.

[Amdt. 179–10, 36 FR 21350, Nov. 6, 1971]

§179.200–9 Compartment tanks.

(a) When a tank is divided into compartments, by inserting interior heads, interior heads must be inserted in accordance with AAR Specifications for Tank Cars, appendix E, E7.00, and must comply with the requirements specified in §179.201–1. Voids between compartment heads must be provided with at least one tapped drain hole at their lowest point, and a tapped hole at the top of the tank. Top hole must be closed, and the bottom hole may be closed, with not less than three-fourths inch nor more than 1½-inches solid pipe plugs having NPT threads.

(b) When the tank is divided into compartments by constructing each compartment as a separate tank, these tanks shall be joined together by a cylinder made of plate, having a thickness not less than that required for the tank shell and applied to the outside surface of tank head flanges. The cylinder shall fit the straight flange portion of the compartment tank head tightly. The cylinder shall contact the head flange for a distance of at least two times the plate thickness, or a minimum of 1 inch, whichever is greater. The cylinder shall be joined to the head flange by a full fillet weld. Distance from head seam to cylinder shall not be less than 1½ inches or three times the plate thickness, whichever is greater. Voids created by the space between heads of tanks joined together to form a compartment tank shall be provided with a tapped drain hole at their lowest point and a tapped hole at top of tank. The top hole shall be closed and the bottom hole may be closed with solid pipe